

**Building the New Reclaimed Water WAC
Proposed Draft Rule Language - work in progress (WIP)
for Rule Advisory Committee Use Only – July 22, 2009**

[DOH-del comments. 7-23-09](#)

PART II SUBMITTALS (version 1.1)

Intent of Part II

1. Identify:
 - Documents requiring submittal to Ecology/WDOH
 - When they are required.
 - Who submits the documents
 - How they are submitted.
 - Signatory requirements.
 2. Specify:
 - Process for agency review
 - Timeframe for review
 - Notification of delay
 - Formal approval
 - Scope of agency review
 - Purpose of each submittal
 - Required content in each submittal
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Proposed Sections: (section numbers may change)

173-219- 120	Requirements to submit documents for review and approval
173-219- 130	Standards for agency review
173-219- 140	<u>Reclaimed water Planning-planning</u> requirements
173-219- 150	Water right impairment assessment
173-219- 160	Engineering report
173-219- 170	Plans and specifications
173-219- 180	Operations and maintenance manual
173-219- 190	Construction quality assurance

Comment [CLR1]: Consistent with name below

Proposed Content:

WAC 173-219-120 Requirements to submit documents for review and approval
See Two hand out matrix process charts for examples requested by the RAC

1. The following submittals are required to

(a) Obtain an individual or master generator reclaimed water permit

- i. Reclaimed water plan or equivalent content.
- ii. Water rights impairment assessment.
- iii. Engineering report or facility plan.
- iv. Any submittals required for a specific type of use.
- v. ~~Construction~~ Plans and specifications.
- vi. Draft operation and maintenance manual, and.
- vii. Permit application form specified by the lead agency

Comment [CLR2]: I can't remember the rational for this – is this to allow GSP and/or WSP information to substitute for the RW plan?

Comment [CLR3]: Why allow a Facility Plan here but only define the Eng Rept in Sec 140? If the FP is allowed to be able to use SRF funds, will the format of the FP be modified to include the same details as required in the RW eng rept?

Comment [DEL4]: Consistent with section 170 title and definition.

(b) Apply for coverage under a general permit. ~~(Separate from (a))~~

- i. Application form for coverage under the general permit as specified by the lead agency, and.
- ii. Any specific submittals required for coverage under the general permit.

(c) Construct or modify a reclaimed water facility.

- i. ~~Facility~~ Engineering report.
- ii. Reliability ~~checklist~~ assessment.
- iii. Plans and specifications.
- iv. Construction quality assurance plan (optional), and.
- v. Declaration of construction completion.

Comment [DEL5]: Does this already exist thru the Standards? I don't think it is defined in this draft rule language.

Comment [CLR6]: Checklist has insufficient detail to assure reliability and the checklist was never intended to be a stand-alone submittal but a reference to issues to consider

Comment [DEL7]: Is this something from a WW regulation, or the Standards?

(d) Operate a reclaimed water facility.

- i. Final operation and maintenance manual.
- ii. Monthly monitoring reports.
- iii. Annual use report, and
- iv. User contracts, if providing reclaimed water to others.

Comment [DEL8]: I recall seeing elsewhere that these have to be included in earlier submittals. Seems like we wanted to see these before operations begin.

2. **Submission process.** Submittals are generally ~~submitted sent~~ in the order listed above to the lead agency. The person submitting documents shall also send, at a minimum, a copy of the reclaimed water plan and a copy of the engineering report to the non-lead agency. Although these requirements are separate from each other, they may be submitted with other submittals with similar content or purpose.

Comment [DEL9]: Or whatever documents ECY and DOH agree to.

Comment [DEL10]: Clarification ????

Comment [DEL11]: Is this meant to say they can be combined, or do you mean parts of these submittals can come from other things, like GMA Comp Plans?

3. **Required signatures:**

- (a) Signatory requirements are listed under WAC 173-219-210.
- (b) **Professional Engineer Required.** All required planning documents, engineering reports (or facility plans), plans and specifications and other technical documents related to the construction or modification of facilities regulated under this rule must be prepared by or under the supervision of a professional engineer licensed in accordance with chapter 18.43 RCW. All copies of these documents submitted to the departments for review must include the signed and dated seal of the professional engineer by whom or under whose supervision they were prepared.

4. **Submittal deadlines.**

- (a) If submittals are part of a permit or compliance schedule, the lead agency must receive the required submittals by the deadline established in the permit or compliance schedule.
- (b) Otherwise, submittals may be submitted at any time. The person submitting the documents is responsible to assure that there is sufficient time to meet funding, contractual and other project deadlines. The departments generally require at least ninety days for review.
- (c) ~~If construction does not begin within two years following approval of the submittal, the lead agency may require an update to reflect changed conditions such as: water quality, services availability, new regulatory requirements, or engineering technology.~~ Approval of plans and specifications shall be in effect for two years unless the lead agency determines a need to withdraw the approval. An extension of the approval may be obtained by submitting a status report and a written schedule for completion. Extensions may be subject to additional terms and conditions imposed by the lead agency.

Comment [DEL12]: DOH typically has language that says the project approval expires in 2 years, unless we get a written extension request. I think that expiration is cleaner, and suggest it be used – puts the burden on the applicant.

Comment [DEL13]: Slightly modified language from ODW regs.

WAC 173-219-130 Standards for agency review.

1. The lead agency typically reviews and ~~either~~ approves, comments on, or disapproves submittals within ninety days of receipt. If circumstances prevent

review within ninety days of receipt, the lead agency shall notify the owner of the reasons for the delay and estimated review time.

2. The lead agency reviews and evaluates ~~all~~ relevant aspects of each project, including the treatment and treatment reliability provided; reclaimed water quality and quantity; and use or potential use. The lead agency shall coordinate with the non-lead agency during the review to ensure that both public health and the environment are protected.
3. The lead agency reviews submittals to determine whether the proposed facilities will be designed, constructed, operated, and maintained consistent with good engineering practices to:
 - (a) Meet state standards and other requirements for the generation, distribution and use of reclaimed water under this rule and under chapter 90.46 RCW.
 - (b) Meet applicable requirements of chapters 90.48 and 90.54 RCW pertaining to the prevention and control of pollution of waters of the state.
 - (c) Meet applicable requirements of chapter 70.119A, pertaining to protection of public health and potable drinking water supplies.
 - (~~e~~)(d) Assure that design approaches are consistent with this rule and with accepted engineering practice as defined by state regulatory authorities in the "Criteria for Reclaimed Water Systems Design" .

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Questions and Comments for the next section – 140 - Requirements for a reclaimed water plan

1. *Do we have a place for bond-holders in Rule or Guidance?*

WAC 173-219-140 Reclaimed Water Planning requirements

1. The applicant shall work with the lead agency to establish the level of detail for a reclaimed water plan. The lead agency may require a pre-plan meeting for this purpose. In general, the scope and detail of the plan will be related to the number of facilities (if master generator), size, complexity, influent supply characteristics, past performance, and uses proposed for the reclaimed water. Engineering reports may be combined with a reclaimed water plan.

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- ~~+2.~~ The reclaimed water planning documents submitted to the departments for review and approval for individual or master generator permits must, at a minimum:

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- a. Explain ~~Identify~~ who will own, operate, and maintain the systems. Consider ownership ~~requirements and operational~~ requirements and capacity including financial, managerial, ~~technical, and operational, including and~~ adequate staffing level and qualified staffing.
- b. Identify existing use, if any, and proposed uses of the reclaimed water.

Comment [CLR14]: I don't understand how to explain the entity owning, operating etc. It sounds like this entity has to be justified or acceptable to the regulatory agencies. We get whomever proposes. I don't know of any regulatory authority to require a change in ownership or O&M, unless the entity doesn't conform to operator certification.

~~c.~~ Estimate the annual or seasonal volume of wastewater available for the production of reclaimed water and the peak day, average day, annual and seasonal demands for reclaimed water for each proposed beneficial use of reclaimed water. Describe plans for storage of reclaimed water produced in excess of demands and/or treatment and disposal of wastewater volumes in excess of the annual or seasonal demands of reclaimed water.

~~e.d.~~ Describe the level of water quality, treatment and reliability required. Describe the proposed system and Address the ability of existing and proposed treatment facilities to meet requirements.

~~e.~~ Describe alternatives considered for treatment and uses, if any.

~~e.f.~~ Identify existing and proposed service boundaries and interlocal agreements if service is provided in areas served by other potable or reclaimed water purveyors.

~~g.~~ Coordinate with local adjacent water and wastewater utilities and jurisdictions. Describe efforts and responses.

~~e.h.~~ Describe the existing and proposed distribution system. Provide a map showing potential routes for pipelines to provide reclaimed water to the alternative uses identified.

~~e.i.~~ ~~Estimate the annual or seasonal volumes required, proposed and available. Describe plans for storage or discharge of the excess.~~

~~e.j.~~ Include a preliminary evaluation of the potential for impairment of existing water rights or a complete evaluation at the discretion of the applicant after consultation with the Department of Ecology Water Resources Program.

~~e.k.~~ ~~Include a discussion of the need for future facilities, groundwater and surface water management, capital and operational costs and customer rate structures for financial viability~~

~~e.l.~~ Discuss compliance with the State Environmental Policy Act (SEPA) and the National Environmental Policy Act (NEPA), if applicable.

~~e.m.~~ ~~Provide Include any other relevant additional data information requested by the departments.~~

~~2.3.~~ Where opportunities for reclaimed water must be considered or coordinated under other planning requirements, such documents may be submitted to the lead agency to meet some or all of the requirements of this section. These plans include but are not limited to:

a. General sewer plans, engineering reports and facility plans for wastewater treatment facilities under RCW 90.48.110 and 112 and WAC 173-240-030.

b. Submittals of a wWater system plans to the department of health under chapter 43.20 RCW and WAC 246-290-100.

Comment [CLR15]: To replace (i) and move it up to reflect importance to the plan. I think (i) was trying to make sure the plan identifies how much water is available to produce RW and what needs to be done with excess if there is more 'supply' than demand. This also requires the plan look at the demands for each use.

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Comment [DEL16]: I don't know what this means. How will the applicant manage GW and SW? Suggest deleting this item. If any parts are critical, combine them with other points.

Comment [CLR17]: Who defines relevant? This seems to be pretty subjective

- c. Regional water supply plan or plans addressing potable water supply service by multiple water purveyors under RCW 90.46.120.

d. Local comprehensive plans under chapter 36.70A.190 RCW and 365.195 WAC.

~~a-c.~~ Additional information necessary to satisfy the requirements of the local government jurisdiction(s).

4. Other items that may be including in the Reclaimed Water Plan include:

- a. Impairment analysis, draft or final;
- b. Collection system ~~design~~ description, if any. Should include details of the collection (service) area, the entity responsible for pre-treatment requirements, if applicable, and who owns, operates and maintains the sewers.

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Comment [CLR18]: Addressed in (i) above?

(The shaded topic on water rights impairment is reserved for future discussion)

WAC 173-219-150 Requirements for a water rights impairment assessment

1. The purpose of the analysis is to evaluate the potential impairment of water right holders when a facility begins to reclaim water rather than discharge it.
2. Ecology recommends completing the analysis as early as possible in the planning process. In general, it is recommended the analysis be completed during the facility plan or engineering report stage.

The scope of an analysis will vary depending on the complexity of the project.

WAC 173-219-160 Engineering report

1. The engineering report for a reclaimed water facility is the design document for the entire facility including any applicable collection systems, treatment, distribution, and/or use areas. The report may incorporate multiple facilities if operated under a master generator permit.

Comment [DEL19]: For my clarity, does this include the WWTP, or begin at the discharge of the WWTP?

2. ~~For approval, the~~ The report must include sufficient detail that the professional engineer could complete plans and specifications from the information within the approved document.
3. The report must clearly show how the facility ~~plans to will~~ comply with the standards and requirements specified by the departments under this rule.
4. All engineering reports must describe:
 - a. Who will own, operate, and maintain the facility, the proposed methods of operation and maintenance, staffing levels, staff qualifications, experience, and responsibilities, and ~~testing monitoring~~ requirements.
 - b. Processes and diagrams of all reclamation processes, reliability features and controls.
 - c. The basis for design. ~~This will include~~Reference requirements within this rule, the Criteria for Reclaimed Water Systems Design of the State of Washington, published engineering and design standards, pilot plant results and site-specific data, and other references, as appropriate.
 - d. Any pilot plant studies used to assess the proposed treatment processes. Define unit design or operating parameters.
 - e. The reliability assessment of all major or otherwise significant equipment and components, individual unit processes and complete treatment trains. Include:
 - i. Flexibility of design.
 - ii. Power supply.
 - iii. Unit processes.
 - iv. Alarms.
 - v. Automated diversions.
 - vi. Storage. and
 - vii. Provisions for disposal or alternative uses.
 - f. The engineering design calculations for the reclamation process. Include:
 - i. Aeration / organic carbon reduction.
 - ii. Nutrient reduction (as required).
 - iii. Disinfection facilities. ~~selection~~
 - iv. Disinfectant reactor contact time.
 - v. Coagulation and filtration processes (if required).
 - vi. Reverse osmosis process (if required). and
 - vii. Pumping, piping and control valve systems.

Comment [DEL20]: What does this mean?

- g. The contingency plan assuring that untreated or inadequately treated wastewater will **not** be delivered to the use area ~~including ground water recharge~~.
- h. A cross-connection control plan identifying any potential cross-connections ~~control issues within the collection system, plant, and distribution system related to raw sewage, wastewater treatment plant effluent, partially treated reclaimed water, reclaimed water and potable water.~~ Chapter 246-290-490, cross-connection control for potable supplies is the acceptable guidance. The plan will say who is responsible for identifying potential cross-connections, installing the necessary level of protective device or assembly, compliance, and testing of cross-connection control activities installed devices and assemblies. The plan shall list local contacts for the, and details of the potable water purveyor's program for cross-connection control program, and the two programs should be coordinated, if applicable.
- i. A summary checklist form provided by the departments, showing how the report addresses each requirement of these standards.

Comment [DEL21]: We really want to see this plan in the O&M manual – an operational issue, not a design issue. I suggest this detail be moved there. I suggest this report section say nothing, or ask for a brief discussion of where cross-connections have been identified and addressed in the design.

Note: The shaded content below will be discussed (and is repeated) with the groundwater recharge uses in Part VI.

1. All engineering reports proposing direct aquifer recharge projects shall

- (a.) Provide a process description and diagram of the additional reverse osmosis treatment facilities, RO brine management facilities, direct recharge / pumping facilities and monitoring well facilities.
- (b.) Provide a hydrogeologic study of the ground water aquifer proposed to receive and store the reclaimed water including:¹
 - i. The impact of the recharge project on potable ground water;
 - ii. The source, area of recharge, quality, hydrostratigraphy, aquifer characteristics, and ground water flow patterns for all ground water within the ground water basin receiving recharged reclaimed water;
 - iii. All wells or areas that will be affected by the proposed project, and describe the ground water quality in the aquifer receiving the reclaimed water;
 - iv. All well(s) subject to the highest reclaimed water contribution and shortest reclaimed water retention time in the underground;
 - v. The possibility of premature discharge of ground water to the surface, landslides, or other slope failures which may result from the proposed project;

Comment [CLR22]: This could be awfully large!

¹ From 1997 WRR Standards.

- vi. Quantitative descriptions of the soil, soil layers, aquifer transmissivity, aquifer hydraulic conductivity, rate and direction of flow, aquifer boundaries, historic ground water levels, and aquifer storage capacity of the aquifer.
- vii. Identification of the agency responsible for preventing the withdrawal of potable ground water within areas restricted by specified minimum separation distances and minimum retention time requirements.
- viii. Description of the methods of determination and results for minimum retention time in the underground and minimum horizontal separation between the point of direct recharge and withdrawal of potable ground water.
- ix. The number and location of proposed and existing monitoring wells, and
- x. A water quality monitoring plan for treated wastewater (reclaimed water plant influent), reclaimed water (the product of the reclamation treatment) and ground water withdrawn from monitoring wells.

Questions:

- *Should this also apply to percolation projects?*
- *Could this part be stamped by a licensed hydrogeologist instead of an engineer*

Comment [DEL23]: Some, but maybe not all.

Comment [DEL24]: Yes.

- 6. All engineering reports proposing and seeking a permit for recovery from aquifer storage of reclaimed water ~~shall~~ shall be reviewed under be reviewed under address the technical standards established under RCW 90.03.370(2).²
- 7. When applicable to the reclaimed water project, the engineering report shall also meet the regulatory requirements included under Ch 173-240 and 246-290 WAC.
- 8. Engineering reports shall include other information requested by the departments as necessary to assess the treatment, distribution or use of the water.

Comment [CLR25]: Should leave the same as the statute.

WAC 173-219-170 Plans and specifications³

- 1. The plans and specifications for a reclaimed water facility are the detailed construction documents used to bid and construct the facility.
- 2. Before bidding the project, ~~the~~ the lead agency, after consultation with the non-lead agency, must approve the plans and specifications before the project proceeds to procurement or advertisement for bidders.

² This requirement was added to RCW 90.46.120 in 2007. The implementing regulation for RCW 90.03.370(2) is Ch. 173-157 WAC, which also states that it does not apply to reclaimed water. Requirements likely must either be listed within this regulation or amend Ch 173-157 WAC for requirements applicable to reclaimed water aquifer recovery projects.

³ From WAC 173-240-080 (industrial wastewater facilities are regulated under WAC 173-240-140 173-240-140.

3. The content and format of the plans and specifications ~~shall be as stated~~should follow in the state of Washington, "Criteria for reclaimed water systems design," and the standards of the -National CAD Standards and the Construction Specifications Institute and ~~shall must~~ include a list of the facility design criteria and a plan for interim operation of facilities, where required, during construction.

Comment [DEL26]: Can't require adherence with a guidance document.

WAC 173-219-180 Requirements for operations and maintenance manuals⁴

1. The draft operations and maintenance manual must ~~provide sufficient detail to~~ outline operation and maintenance of the entire reclaimed water facility, and must be approved before the facility begins operation.
2. Operators must follow the approved draft for method of operation, until the final manual is submitted to the lead agency after start-up changes are incorporated. ~~less the lead agency approves changes in writing.~~
3. The final operations and maintenance manual must be approved by the lead agency before ??Before commencing operation, a permittee must receive approval from the lead agency of a final detailed operations and maintenance manual.
4. The operations and maintenance manual shall include, at a minimum:

Comment [DEL27]: Not sure how to address this, due to the comment that start-up may provide info that leads to a change in the O&M manual.

- a. The operations and maintenance program shall include the following elements as applicable:
 - (a) Reclaimed water management and personnel;
 - (b) Operator certification;
 - (c) Operating procedures for normal conditions, including a comprehensive monitoring plan for all contaminants as directed in the permit;
 - (d) Emergency response program, including addressing abnormal operating conditions, such as those associated with fires, floods, unscheduled power outages, facility failures, and system maintenance, by using measures consistent with applicable regulations and industry standards to ensure the system is constructed, maintained, and operated to protect against the risk of contamination by cross-connections as a result of loss of system pressure, and the risk of other environmental or public health contamination; and
 - (e) Cross-connection control program (see WAC 246-290-490).
- b. Other suggested items for inclusion are noted in the most recent version of the Criteria for Reclaimed Water Design. The departments strongly encourage their use.

Comment [DEL28]: Here's an example of another O&M manual requirement section.

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- (a.) Regulatory requirements:-
- (b.) Manufacturer's information on equipment before unit startup:-
- (c.) Technical guidance for both normal and emergency operating conditions:- and

⁴ From WAC 173-240-080 Domestic Wastewater Facilities except as specifically noted. Note that Industrial facilities are regulated under WAC 173-240-150.

(d.) The following information:

- i. The assignment of managerial and operational responsibilities; ~~including~~
- ~~ii.~~ ~~p~~ Plant classification and classification of required operators;
- ~~iii.~~ A description of plant type, flow pattern, operation, and efficiency expected;
- ~~iv.~~ The principal design criteria;
- ~~v.~~ A process description of each plant unit, including function, relationship to other plant units, and schematic diagrams;
- ~~vi.~~ ~~A discussion of T~~ the detailed operation of each unit and description of various controls, recommended settings, fail-safe features, etc.;
- ~~vii.~~ A written preventive maintenance program ensuring that all equipment is kept in a reliable operating condition⁵;
- ~~iv.viii.~~ ~~A discussion of H~~ how the treatment facilities are to be operated during anticipated maintenance procedures, and under less than design loading conditions, if applicable, such as initial loading on a system designed for substantial growth;
- ~~viii.ix.~~ ~~A discussion of h~~ how the treatment facility ~~owner~~ies will ~~provide~~ ~~employ~~ and ~~schedule~~ a sufficient number of qualified personnel to operate the facility ~~effectively~~ so as to achieve the required level of treatment at all times;
- ~~ix.x.~~ ~~A section on L~~ laboratory procedures, including sampling techniques, monitoring requirements, and sample analysis;
- ~~x.xi.~~ Recordkeeping procedures and sample forms to be used;
- ~~x.xii.~~ A maintenance schedule that incorporates manufacturer's recommendations, preventative maintenance and housekeeping schedules, and ~~specifies~~ special tools and equipment usage;
- ~~xiii.xiii.~~ A section on ~~operator and equipment~~ safety;
- ~~xiii.xiv.~~ A section that lists the spare parts inventory, address of local suppliers, equipment warranties, and appropriate equipment catalogues;
- ~~xiii.xv.~~ Emergency plans and procedures; ~~and~~;
- ~~xiii.xvi.~~ A section on operation and maintenance of the ~~collection and~~ distribution systems and use area.

Comment [DEL29]: Suggest these 15 items all go in guidance.

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5. ~~The operations and maintenance manual F~~ ~~for those~~ projects funded by the U.S. Environmental Protection Agency; ~~the operation and maintenance manual~~ shall also follow the requirements of the EPA publication, "Considerations for Preparation of

⁵ 1997 standards

Operation and Maintenance Manuals."

WAC 173-219-190 Requirements for construction quality assurance⁶

1. **Approved Plans and Specifications.** All facilities subject to the provisions of this rule must be constructed in accordance with the plans and specifications approved by the lead agency.
2. **Changes.** ~~The lead agency must first approve any proposed construction changes that Any contemplated changes during construction, which are significant deviations from the approved plans before they are made, must first be submitted to the lead agency for approval.~~
3. **Declaration of Construction Completion.** Within thirty days after acceptance by the owner of the construction or modification of a reclaimed water facility, the professional engineer in responsible charge of inspection of the project shall submit to the lead agency:
 - (a) One complete set of record drawings, properly labeled, dated and stamped by the professional engineer;
On a form provided by the lead agency, a declaration stamped and signed by the professional engineer stating the facilities were constructed in accordance with the provisions of the approved plans and specifications along with approved change orders and without significant change from the lead agency's approved plans and specifications and approved change orders. ~~The declaration shall include:~~
~~Name and brief description of project~~
~~Name and address of owner~~
~~Date completed~~
~~Date of approval of plans and specifications~~
~~The following statement:~~

~~I hereby declare that I am the project engineer of the above identified project and that the project was reviewed and observed by me or my authorized agent. I further declare that the project was, to the best of my knowledge and information, constructed and completed in accordance with the plans and specifications and major change orders approved by the lead agency and as shown on the owner's "as-built"~~
~~Signature, date, and seal of professional engineer~~

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Comment [DEL30]: This should be on the form we provide, above the signature. Should not be in the rule.

⁶ From WAC 173-240-077 Domestic Wastewater Facilities